

WHAT IS CLAIMED IS:

1. In a radio access network (RAN) where information may be sent to a mobile radio unit using a shared radio channel shared by other mobile radio units, a method comprising:

5 establishing between a first RAN node and a second RAN node a first transport bearer to transport data to be transmitted on the shared radio channel, and

establishing between the first RAN node and the second RAN node a second transport bearer to transport control information originated in the first RAN node relating to the first transport bearer data.

10 2. The method in claim 1, further comprising:

the first RAN node transmitting the control information over the second transport bearer to the second RAN node.

15 3. The method in claim 1, wherein the control information includes scheduling information.

4. The method in claim 1, wherein the control information indicates information needed by the mobile radio unit to decode the data transmitted over the shared radio channel.

20 5. The method in claim 4, wherein the needed information includes one or more of the following: a frame identifier, a radio channel identifier, and an indication of how different radio channels are multiplexed on the identified frame.

6. The method in claim 1, wherein the control information includes transport format information.

7. The method in claim 1, wherein the control information includes a transport format indicator.

25 8. The method in claim 7, wherein the transport format indicator includes a frame identifier and an index to a lookup table stored in the mobile radio unit containing

information relating to how a transport channel is multiplexed on the shared radio channel, wherein the shared radio channel is specified by a channelization code and a spreading factor.

9. The method in claim 1, wherein the first RAN node is a drift radio network controller (DRNC) and the second RAN node is a base station (BS).

10. The method in claim 1, wherein information may be sent to the mobile radio unit using a dedicated radio channel, the method further comprising:

10 establishing a third transport bearer to carry dedicated radio channel data and dedicated radio channel control information through the RAN for transmission to the mobile radio unit on the dedicated radio channel.

11. The method in claim 10, wherein the dedicated radio channel carries the dedicated control information and the control information originated at the first node to the mobile radio unit.

12. The method in claim 10, wherein the first RAN node is a drift radio network controller (DRNC) and the second RAN node is a base station (BS), and wherein the RAN includes a third RAN node corresponding to a serving radio network controller (SRNC) coupled to the DRNC, the method further comprising:

the SRNC providing data to be transmitted to one or more mobile radio units to the DRNC over the third transport bearer.

20 13. The method in claim 11, wherein the third transport bearer is established between the SRNC and the DRNC and between the DRNC and the BS.

14. The method in claim 11, wherein the third transport bearer is established between the SRNC and the BS.

15. In a radio communications system including a radio access network (RAN) 25 with a serving radio network controller (SRNC) coupled to a drift radio network controller (DRNC) for supporting communications with mobile radio units over a radio interface, a method comprising:

establishing a first RAN transport bearer to transport information supervised by the SRNC for transmission over a dedicated radio channel to a mobile radio unit;

establishing a second RAN transport bearer to transport information supervised by the DRNC for transmission over a shared radio channel to the mobile radio unit; and

5 establishing a third RAN transport bearer to transport DRNC-originated information.

16. The method in claim 15, wherein the DRNC-originated information relates to the information supervised by the DRNC.

17. The method in claim 16, wherein the DRNC-originated information is a traffic format indication message originated by the DRNC.

18. The method in claim 17, wherein the traffic format indication message originated by the DRNC instructs the mobile radio unit how to receive information on the shared radio channel.

19. The method in claim 15, further comprising:

15 the DRNC transporting DRNC-originated information over the third transport bearer for instructing the mobile radio unit how to receive information on the shared radio channel.

20. A computer-generated data signal embodied in an electrical signal transported on a radio access network (RAN) transport bearer established between a first RAN node corresponding to a drift radio network controller and a second RAN node corresponding to a base station, comprising:

a frame number field including a specific frame number corresponding to a frame on a radio channel, and

25 a transport format field including information relating to a particular radio channel resource useable by a mobile radio unit to receive information directed to the mobile radio unit.

21. The computer-generated data signal in claim 20, wherein the transport format field includes information that may be used to address a transport format table stored in a mobile radio unit.

22. The computer-generated data signal in claim 20, wherein the transport format field contains information that may be used by a mobile radio unit to receive information intended for the mobile radio unit carried on a shared radio channel.

23. The computer-generated data signal in claim 20, wherein the transport format field includes a transport format combination indicator (TFCI) generated by the drift radio network controller.

24. In a radio access network (RAN) where information may be sent to one or more mobile radio units using a shared radio channel, a RAN node for communicating with a base station, comprising:

a controller configured to establish a first transport bearer to the base station to transport data to be transmitted on the shared radio channel, and to establish a second transport bearer to the base station to transport control information originated in the RAN node.

25. The RAN node in claim 24, wherein the control information indicates to a mobile radio unit receiving transmissions from the base station information needed to decode information transmitted over the shared radio channel.

26. The RAN node in claim 25, wherein the needed information includes one or more of the following: a frame identifier, a radio channel identifier, and an indication of how different radio channels are multiplexed on the identified frame.

27. The RAN node in claim 24, wherein the control information includes transport format information.

28. The RAN node in claim 27, wherein the control information includes a transport format indicator.

29. The RAN node in claim 28, wherein the transport format indicator includes a frame identifier and information that is useable by a mobile radio to address a lookup table stored in the mobile radio containing information relating to how a radio channel is multiplexed in the identified frame, wherein the radio channel is specified by a 5 channelization code and a spreading factor.

30. The RAN node in claim 24, wherein the first RAN node is a drift radio network controller (DRNC) configured to communicate with a serving RNC (SRNC).

31. The RAN node in claim 30, wherein the controller is configured to establish a third transport bearer to the base station to transmit data be transmitted on a dedicated radio channel.

32. A radio access network, comprising:
a serving radio network controller (SRNC) for initially establishing a connection with a mobile radio unit over a radio interface;
a drift radio network controller (DRNC) for providing resources to the SRNC to support the connection; and
a base station associated with the DRNC for conveying connection information to the mobile unit over a shared radio channel,
wherein the DRNC is configured to establish a first transport bearer to transport the connection information from the DRNC to the base station on the shared radio 20 channel and a second transport bearer to transport control information related to the connection information from DRNC to the base station.

33. The radio access network in claim 32, wherein the SRNC is configured to establish a third transport bearer to carry connection information to be transmitted on a dedicated radio channel between the base station and the mobile radio unit.

34. The radio access network in claim 33, wherein the SRNC is configured to establish the third transport bearer with the base station.

35. The radio access network in claim 33, wherein the SRNC is configured to establish the third transport bearer with the base station by way of the DRNC.

36. The radio access network in claim 32, wherein the control information includes one or more of the following: a frame identifier, a radio channel identifier, and an indication of how different radio channels are multiplexed in the identified frame.

37. The radio access network in claim 32, wherein the control information includes transport format information.

38. The radio access network in claim 32, wherein the control information includes a transport format indicator.

39. A radio access network (RAN) where information may be sent to a mobile radio unit using a shared radio channel shared by other mobile radio units, comprising:
first means for establishing between a first RAN node and a second RAN node a first transport bearer to transport data to be transmitted on the shared radio channel, and
second means for establishing between the first RAN node and the second RAN node a second transport bearer for transporting control information originated in the first RAN node relating to the first transport bearer data.

40. The RAN in claim 39, wherein the first means is a drift radio network controller (DRNC) and the second means is a base station.